

KENTUCKY Adult Education


Your future starts here!

Resources for the Key Advances in CCR Instruction

Teaching for 21st Century Skills

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Today's employers are asking for workers that can problem solve, think critically, collaborate as a member of a team, and communicate effectively. The key advances, or key shifts in instruction as they are often called, play a huge role in preparing students with these necessary skills. During this webinar, Dawn and I will be giving you an overview of the key advances and the resources from OCTAE for using them with your instruction. As we take you through the power point, please keep in mind that these key instructional shifts are not only essential in preparing our students for college and careers, but also for the GED test and eventually, when OCTAE moves to the new NRS descriptors, they will be needed to get level gains on the new TABE test.

Mathematics

- Focus
- Coherence
- Rigor

English/Language Arts

- Complexity
- Evidence
- Knowledge

The Three Key Advances/Shifts

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I'll be taking you through the 3 key advances for math, focus, coherence and rigor. Dawn Hanzel will then explain the three shifts for English/Language Arts – complexity, evidence and knowledge. All of the resources we'll be showing you are now available on our website which we'll show you at the end of the webinar.

Major Work of the Level Summaries

Level A

- Counting, cardinality, number sense, and base-ten operations (whole number relationships and two-digit place value)
- Addition and subtraction
- the concept of an equation, a variable, and the meaning of the equal sign within 20
- reasoning about geometric shapes in space as a basis for understanding the properties of congruence, similarity, and symmetry, and developing an understanding of linear measurement (length)

Level B

- understanding base-ten notation (place value for whole numbers to 1000)
- developing fluency in addition and subtraction (to 3 digits)
- understanding and exploring strategies for multiplication and division (within 100)
- foundational understanding of fractions.

These skills will prepare students for work with rational numbers, ratios, rates, and proportions in subsequent levels. A critical area of focus is on gaining a foundational understanding of fractions and preparing the way for work with rational numbers.

- using standard units of measure and developing understanding of the structure of rectangular arrays and areas
- analyzing two dimensional shapes as a foundation for understanding area, volume, congruence, similarity and symmetry.

Level C

More than any other, Level C provides the foundation for all future mathematical studies.

- fluency with multi-digit whole and decimal numbers
- calculations with fractions (and the relationships between them)
- the concept of ratio and rates

Focus

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The first instructional math shift is to focus on a deep and thorough understanding the major work of each level of the CCRS. Too often, by trying to quickly cover several topics, students never really own the material. This document offers a summary of what topics should be learned deeply and well in each level of the standards. This is just a screenshot; the actual document lists the MWOTL through Level E.

Major Work of the Level (MWOTL)

CCR Standards for Mathematics Progressions Document

Focus Standards (MWOTL) are Listed in **Bolded Type**

Supporting Standards are listed in *Italics*.

Focus

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Whereas the summary document listed the MWOTL topics, the CCR Standards for Mathematics Progressions document actually tells us which standards in each level address the MWOTL. We call them Focus Standards and they are presented in bold type while the other standards are considered to be supporting standards, indicated in italics. Here is a screen shot taken from the document.

Algebra and Functions

Level A – Operations and Algebraic Thinking

1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

1.OA.3 Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)

1.OA.4 Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.

1.OA.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$; $7 = 8 - 1$; $5 + 2 = 2 + 5$; $4 + 1 = 5 + 2$.

1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.

Level B – Operations and Algebraic Thinking

2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems

Progressions Document

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Can you tell from this example which standards should be the focus of your teaching and which ones can be covered more quickly? Let's take a closer look- at the very lowest level of algebraic thinking, 5 of the 7 standards should be a focus.

CCR Standards for Mathematics Progressions Document

4 Main Categories across All Levels:

- 1) Number and Ratios: Understanding and Operations
- 2) Algebra and Functions
- 3) Geometry
- 4) Data, Probability, and Statistical Measurement

Coherence

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The second shift has to do with how instructors design a mathematical learning path. Coherence speaks to the progression in content within and across levels, allowing students to build new understanding on previous foundations. The same document used to identify focus standards should be used to assure a coherent progression of learning. When you become familiar with this document, you'll find that the layout of the math standards has been simplified. Rather than all those different domains as you move across levels, all the domains have been placed into just 4 categories. For example, as the levels progress under Number and Ratios, you'll see Level A presents the domain Number Base Ten which continues into Level B and C. Number Base Ten evolves into Number Systems by Level D, and finally, by Level E it has become Number and Quantity. By grouping the standards in this way, an instructor can readily see their progression from one level to the next. Here's an example from the Algebra category.

Level D – Functions

8.F.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. [Also see F.IF.1]

8.F.3 Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points $(1,1)$, $(2,4)$ and $(3,9)$, which are not on a straight line.

8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. [Also see F.BF.1 and F.LE.5]

8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally. [Also see A.REI.10 and F.IF.7]

Level E – Algebra

A.SSE.1 Interpret expressions that represent a quantity in terms of its context.*

A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients.*

A.SSE.2 Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$. [Also see 7.EE.2]

A.SSE.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* [Also see 7.EE.2]

A.SSE.3a Factor a quadratic expression to reveal the zeros of the function it defines.* [Also see 7.EE.2]

A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. [NOTE: Emphasis should be on operations with polynomials.]

A.APR.6 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$.

Coherence

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Unlike the way the original math standards document presents the standards, one level at a time, this document sequences all five levels having to do with one of the four big categories. It also leaves out the overarching standards and their clusters, presenting the grade-level designation at the beginning of the standard. Rather than each standard signaling a new concept or idea, standards at higher levels become extensions of previous learning., creating a natural flow through the material.



[http://achievethecore.org/coherence-map /](http://achievethecore.org/coherence-map/)

Coherence Map

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In addition to the Progressions document, Jason Zimba, one of the writers of the Common Core standards, has mapped all of the common core standards to show how they are connected across and within each grade level. Let me show you how it works. Follow this link or go to the Achieve the Core website and search for coherence map. Choose the standard you're targeting in your lesson to see what previous learning is needed and to see the next standard in the progression.

The Three Components of Rigor

Equal Measures of:

Conceptual Understanding

Procedural Skill and Fluency

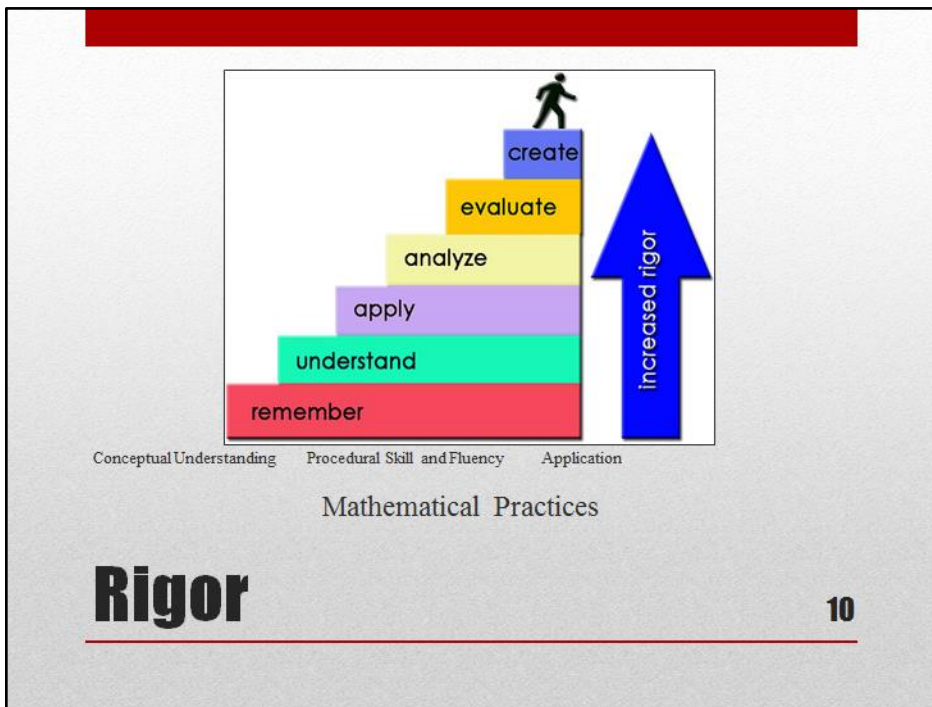
Application

Rigor

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Rigor, the third key shift for math may be the most challenging, as it is a term used to describe a balance of three important components of math instruction- conceptual understanding, procedural skill and fluency, and real-life application. A close examination of the CCR Standards for Mathematics reveals all three components. Some of the standards are strictly procedural, such as “Fluently multiply multi-digit whole numbers using the standard algorithm.” But many standards ask for a deeper understanding than simple computation. Verbs such as: interpret, apply, understand, determine, explain are used throughout. Whereas we know the importance of using real-life contexts to make math relevant for our students, some standards say to do so explicitly, such as this one from Level D (Number System). ...

With the key advance of rigor, the standards are asking us to move away from an emphasis on computation to a much deeper understanding of mathematical concepts, such as properties and patterns. Students with a solid conceptual understanding see mathematics as more than just a set of procedures, more than “how to get the answer”. They don’t have to rely on memorization to arrive at a solution.



It may help to apply the Bloom's hierarchy in teaching math skills. All of these levels of Blooms can be found in the standards. The 8 Mathematical Practice standards encourage our students to interact with math content that pushes them into the higher levels of rigor. Practice standards like MP.2 Reason abstractly and quantitatively, or MP. 3 Construct viable arguments and critique the reasoning of others, or MP.7 Look for and make use of structure. The practice standards act as a framework for conceptual understanding.

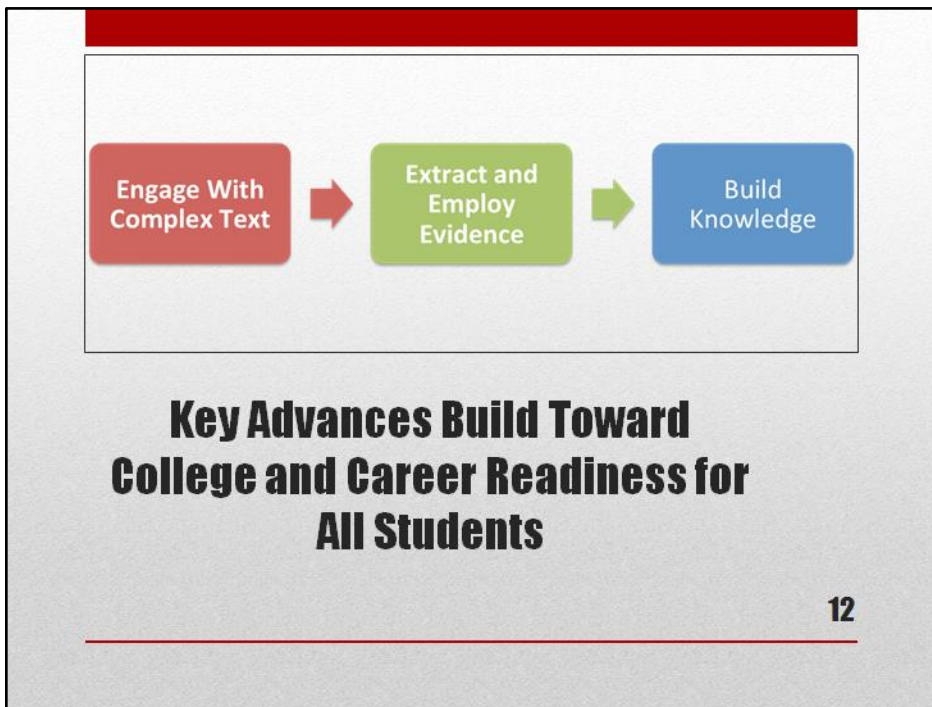
Resources for rigor along with Focus and Coherence can be found on the reworked SBI page on the kyae web site. Now, here's Dawn to take you through some great tools to use in your RLA, Science and Social Studies instruction.



Read Like a Detective

Write Like a Reporter

**ELA Standards in a
Nutshell**



Big Idea: The three key advances are connected and build on one another.

Facilitator Talking Points:

- When students engage with complex text and extract and employ evidence from those texts, they gain knowledge, enlarge their experience, and broaden their worldviews.
- Students who meet the CCR Standards undertake the close, attentive reading that is essential to understanding complex works.

- Read closely and extract information from complex text
- Analyze what they have read
- Make logical inferences or valid claims
- Evaluate evidence gleaned from text
- Express information or findings in words

What students need to know and be able to do

Student Outcomes

In everyday life...

Applying for a job, negotiating the price of a new car, arguing in traffic court, reading school documents, medical reports, and advertisements,



In academic life...

Taking notes, drawing conclusions from readings, writing essays and papers, researching, taking assessments

On the job...

Reading and writing emails, understanding and researching information, writing reports, communicating with team members

Anywhere and everywhere...

Irrefutably making your point, writing to be read, communicating to be heard, critically evaluating others arguments, protecting yourself from unethical persuasive tactics, recognizing faulty reasoning when you see it.

Shift 1: Complexity

- Regular practice with complex text and its academic language

Shift 2: Evidence

- Reading, writing, speaking grounded in evidence from text, both literary and informational

Shift 3: Knowledge

- Building knowledge through content-rich nonfiction

<http://www.corestandards.org/other-resources/key-shifts-in-english-language-arts/>

Key Shifts in the ELA Standards

Regular practice with complex text and its academic language

- Quantitative scales or readability formulas
 - ✧ Word length
 - ✧ Word frequency/familiarity
 - ✧ Sentence length
- Qualitative Measures
 - ✧ Purposes
 - ✧ Text Structures
 - ✧ Language features
 - ✧ Knowledge demands
- Professional judgment of the reader and task

Features of Text Complexity

CCR Levels of Learning	ATOS	Degrees of Reading Power	Flesch-Kincaid	The Lexile Framework	Reading Maturity
B (2 nd – 3 rd)	2.75 – 5.14	42 – 54	1.98 – 5.34	420 – 820	3.53 – 6.13
C (4 th – 5 th)	4.97 – 7.03	52 – 60	4.51 – 7.73	740 – 1010	5.42 – 7.92
D (6 th – 8 th)	7.00 – 9.98	57 – 67	6.51 – 10.34	925 – 1185	7.04 – 9.57
E (9 th – 10 th)	9.67 – 12.01	62 – 72	8.32 – 12.12	1050 – 1335	8.41 – 10.81
E (11 th – CCR)	11.20 – 14.10	67 – 74	10.34 – 14.2	1185 – 1385	9.57 – 12.00

www.readingmaturity.com

Quantitative Analysis Chart for Determining Text Complexity

Big Idea: Introduce quantitative measures. Run a text through:
<http://www.readingmaturity.com/>

Facilitator Talking Points:

- Number 2 “Access to Quantitative Analysis Tools” offers directions on how to run a text through a computer program to determine text complexity
- Number 3 “Quantitative Analysis Chart for Determining Text Complexity” – different publishers use different tools to measure text complexity. This gives a range of available tools that are all valid measures of texts.

Facilitator Notes:

- Explain how to use the support tools #2 and #3.
- Run a preselected text from the resource (and typed in Word) through Reading Maturity or other measure unless the resource has already provided a quantitative measure.
- Alternatively, do this review prior to the training and tell participants in what level, according to this chart, this text belongs.
- Clicking the hyperlink “access” will take you to the Reading Maturity Website to demonstrate.
- ----- Meeting Notes (5/14/15 13:14) -----
- May not start at the complexity level but you want to get them there quickly.



TEXT COMPLEXITY: QUALITATIVE MEASURES RUBRIC INFORMATIONAL TEXT



Text Title: _____

Text Author: _____

PURPOSE			
High <input type="checkbox"/> Complex, implicit, and/or difficult to determine; may have multiple purposes	Middle High <input type="checkbox"/> Implicit, but can be inferred; may have multiple purposes	Middle Low <input type="checkbox"/> Implicit, but easy to identify based on context	Low <input type="checkbox"/> Explicitly stated
STRUCTURE			
High <input type="checkbox"/> Organization: highly complex; implicit connections between ideas; conforms to the conventions of a specific content area or discipline <input type="checkbox"/> Text Features: if used, are essential in understanding content <input type="checkbox"/> Use of Graphics: if used, interpretation of complex graphics essential to understanding the text; may also provide information not conveyed in the text	Middle High <input type="checkbox"/> Organization: complex; some explicit connections between ideas; may exhibit traits common to a specific content area or discipline <input type="checkbox"/> Text Features: if used, greatly enhance the reader's understanding of content <input type="checkbox"/> Use of Graphics: if used, some graphics are complex and may occasionally be essential to the understanding of the text	Middle Low <input type="checkbox"/> Organization: may be complex; largely explicit connections between ideas; generally follows the conventions of the genre <input type="checkbox"/> Text Features: if used, enhance the reader's understanding of content <input type="checkbox"/> Use of Graphics: if used, graphics are mostly simple and supplementary to understanding the text	Low <input type="checkbox"/> Organization: simple; explicit connections between ideas; conforms to the conventions of the genre <input type="checkbox"/> Text Features: if used, help the reader navigate and understand content but are not essential <input type="checkbox"/> Use of Graphics: if used, graphics are simple and unnecessary to understanding the text
LANGUAGE			
High <input type="checkbox"/> Conventionality: contains abstract and/or figurative language or irony <input type="checkbox"/> Clarity: dense and complex language that is generally unfamiliar, archaic, discipline-specific, or overly academic; language may be ambiguous or purposefully misleading	Middle High <input type="checkbox"/> Conventionality: occasionally contains abstract and/or figurative language or irony <input type="checkbox"/> Clarity: somewhat complex language that is occasionally unfamiliar, archaic, discipline-specific, or overly academic	Middle Low <input type="checkbox"/> Conventionality: largely contemporary, conversational language <input type="checkbox"/> Clarity: largely explicit, familiar language; easy-to-understand and rarely archaic, discipline-specific, or overly academic	Low <input type="checkbox"/> Conventionality: contemporary, conversational language <input type="checkbox"/> Clarity: clear, explicit, literal, easy-to-understand language
KNOWLEDGE DEMANDS			
High <input type="checkbox"/> Subject Matter Knowledge: requires extensive, perhaps specialized or even theoretical discipline-specific content knowledge <input type="checkbox"/> Intertextuality: many references to/citations of other texts or outside ideas, theories, etc.	Middle High <input type="checkbox"/> Subject Matter Knowledge: requires moderate levels of discipline-specific content knowledge; some theoretical knowledge may enhance understanding <input type="checkbox"/> Intertextuality: some references to/citations of other texts or outside ideas, theories, etc.	Middle Low <input type="checkbox"/> Subject Matter Knowledge: everyday, practical knowledge is largely necessary; requires some discipline-specific content knowledge <input type="checkbox"/> Intertextuality: few references to/citations of other texts or outside ideas, theories, etc.	Low <input type="checkbox"/> Subject Matter Knowledge: requires only everyday, practical knowledge and familiarity with conventions of the genre <input type="checkbox"/> Intertextuality: no references to/citations of other texts or outside ideas, theories, etc.

Text Complexity

**Reading, writing, speaking grounded in evidence from text,
both literary and informational**

- **Students must be able to cite evidence from the text in order to present**
 - ✧ Careful analyses
 - ✧ Well-defended claims
 - ✧ Clear information
- **Ability to locate and deploy evidence are hallmarks of strong readers and writers**

Features of Evidence

Look for evidence for how well the resource provides reading, writing, and speaking activities grounded in the text.

- ✓ Are the questions text-dependent and text-specific? Do they require readers to produce evidence from the text?
- ✓ Do the questions address the central ideas of the text? Focus on words, sentences, and paragraphs, as well as larger ideas, themes, or events, building understanding?
- ✓ Do they focus on difficult portions of text to enhance reading proficiency?
- ✓ Do they gradually build understanding? Take particular note to see if they support students' ability to address the culminating task.
- ✓ Do they involve analysis, synthesis, and evaluation? (Some may be literal)
- ✓ Do they include prompts for writing and discussion?
- ✓ Do the questions target level-specific standard(s)?

Criteria for Text Dependent Questions

Big Idea: Determine if the questions and tasks are text-dependent and text-specific.

Facilitator Notes:

- For each question, ask participants to provide evidence for the answer.
- This work is to be done in collaboration with colleagues, not as an independent review (many heads are always better than one).
- Select one lesson and lead the whole group through discussion of questions 1–4.

Non-Text Based	Text-Based
<p>In "Casey at the Bat," Casey strikes out. Describe a time when you failed at something.</p> <p>In "Letter From a Birmingham Jail," Dr. King discusses nonviolent protest. Discuss a time when you wanted to fight against something that you felt was unfair.</p> <p>From "The Adventures of Tom Sawyer," identify the different methods of removing warts that Tom and Huck talk about and devise your own charm to remove warts. Are there cultural ideas or artifacts from today that could be used in the charm?</p>	<p>What makes Casey's experiences at bat humorous?</p> <p>What can you infer from King's letter about the letter that he received?</p> <p>Why does Tom hesitate to allow Ben to paint the fence? How does Twain construct his sentences to reflect that hesitation? What effect does Tom's hesitation have on Ben?</p>

What makes these questions non or tex-dependent?

Big Idea: Participants need to be able to identify a text-dependent question.

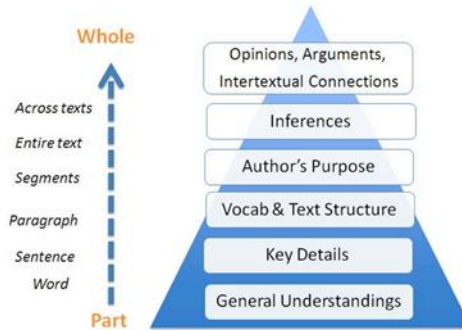
Facilitator Talking Points:

- These are all real-life examples of other sorts of questions compared with a text-dependent one about the same text.
- It is easy to see that the questions on the left side pull students away from the text as opposed to deeper into it.

Facilitator Notes:

- Take some time to go through these examples to illuminate the difference between a text-dependent question and a non-text-dependent question.

Progression of Text-dependent Questions



Text-dependent Questions

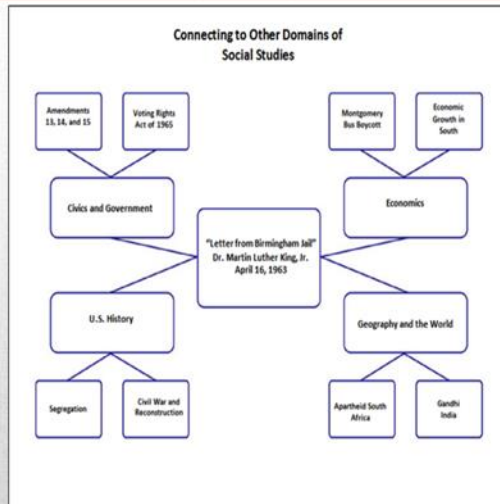
Building knowledge through content-rich nonfiction

➤ Literacy across the disciplines of

- ✧ Science
- ✧ Social Studies
- ✧ Technical Subjects

➤ Shift to nonfiction text that constitutes the majority of what people read in college and the workplace

Features of Knowledge



Building Knowledge

The Key Advances (Shifts) for CCRS English Language Arts Instruction

The Key Advances (Shifts) for CCRS Mathematics Instruction

Resource Alignment Charts

Lessons and Assignments

KYAE Draft Observation Tool and Supporting Documents

www.kyae.ky.gov/educators/ccrsbi.htm